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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MELVIN E. WOLFE JR., MARK E. BAER and
ALAN R. AYOTTE

Appeal 2009-012752
Application 10/662,683
Technology Center 3700

Before WILLIAM F. PATE III, JOHN C. KERINS and
STEVEN D.A. McCARTHY, *Administrative Patent Judges*.

McCARTHY, *Administrative Patent Judge*.

DECISION ON APPEAL

1 The Appellants appeal under 35 U.S.C. § 134 from the Examiner's
2 final decision rejecting claims 11-19. The Examiner rejects claims 11-13
3 and 16-18 under 35 U.S.C. § 103(a) as being unpatentable over Sunaga (US
4 6,737,770 B2, issued May 18, 2004) and Matsuoka (US 5,880,666, issued
5 Mar. 9, 1999); and claims 14, 15 and 19 under § 103(a) as being
6 unpatentable over Sunaga, Matsuoka and Lewchenko (US 6,058, 595, issued

1 May 9, 2000). We have jurisdiction under 35 U.S.C. § 6(b).

2 We REVERSE.

3 Claim 11 is the sole independent claim on appeal:

4 11. A method of making an electric
5 motor, comprising:

6 winding a first magnet wire about a first lug
7 in a winding board and a first protrusion in a
8 stator, the winding board being disposed on the
9 stator and including a switch having at least an
10 internal terminal, and a fuse having an input
11 terminal and an exit terminal;

12 laying the first magnet wire across the exit
13 terminal and the input terminal on the fuse;

14 connecting an end portion of the first
15 magnet wire directly to the switch; and

16 severing the first magnet wire between the
17 input terminal and the exit terminal on the fuse.

18 Matsuoka describes a fuse 15 including a fuse body 1 received in a
19 housing 2. The fuse body 1 including a pair of press-connecting terminals 4,
20 5 and a narrow melting portion 10 formed between the terminals 4, 5.

21 (Matsuoka, col. 3, ll. 31-38). Matsuoka teaches connecting the fuse 15 by
22 laying a wire 16 across the terminals 4, 5 of the fuse 15 (Matsuoka, col. 4, ll.
23 5-12 and fig. 3); severing the wire 16 between the terminals 4, 5 on the fuse
24 15 (*id.*, col. 4, ll. 20-26 and fig. 4); and closing a lid 3 of the housing 2 to
25 position a projection 13 on an inner surface 12 of the lid 3 between the
26 severed ends 17, 18 of the wire 16 (*id.*, col. 4, ll. 35-39 and fig. 5).

27 Matsuoka does not describe an electric motor. Neither does Matsuoka
28 specifically describe a method for making an electric motor.

1 Sunaga describes a wire-wound-type brushless electric motor *1*
2 including a stator *2* and a rotor *3* rotatably supported by the stator *2*. The
3 stator *2* includes a housing *4* installed on a circuit protection case *20*.
4 (Sunaga, col. 3, ll. 7-16 and fig. 1). The circuit protection case *20* contains a
5 drive control circuit *30*. (Sunaga, col. 3, ll. 59-61). The drive control circuit
6 *30* includes a first circuit section *31* for eliminating surges of the supply
7 electric power and a second circuit section *32*. The first circuit section *31* is
8 designed to eliminate surges of the electric power supply. (Sunaga, col. 3, ll.
9 61-66). The second circuit section *32* includes switching devices *41* for
10 switching the direction of the drive current supplied to the exciting coils *7* of
11 the stator *2*. (Sunaga, col. 4, ll. 25-30). The first circuit section *31* is
12 mounted in an inner case *33*. (Sunaga, col. 3, l. 66 – col. 4, l. 4). The
13 second circuit section *32* is mounted on a printed circuit board *40* located
14 between the inner case *33* and the stator *2*. (Sunaga, col. 4, l. 19-23).

15 Sunaga's motor *1* also includes a fuse member *60* made from an
16 elastic, electrically-conductive material. (Sunaga, col. 5, l. 67 – col. 6, l. 2).
17 Sunaga teaches connecting one end of the fuse member *60* to the printed
18 circuit board *40* which mounts the switching devices *41*. Sunaga teaches
19 securing the other end of the fuse member *60* to the first circuit section *31*.
20 (Sunaga, col. 5, l. 67 – col. 6, l. 8 and fig. 7A).

21 The Examiner concludes that it would have been obvious to modify
22 Sunaga's method by "applying the simple process of making a fuse, as
23 taught by Matsuoka et al., in order to easily mount a fuse to an existing
24 circuit and speed up the fuse making process." (Ans. 4). In the "Response
25 to Argument," the Examiner elaborates on the proposed modification:

1 [W]hen the technician needs extra protection for
2 the winding coils (Fig. 1, item 7) and new switch
3 (45) [sic, 41] which are interconnected through the
4 printed circuit board or PCB (40) and terminal
5 (48), the technician just needs to mount a small
6 fuse on the printed circuit board (40) near the
7 terminal (48), disconnects the excess magnetic
8 wire of the winding coil (7) that is connected to the
9 terminal and reconnects the magnetic wire directly
10 across the fuse to a PCB solder spot then severing
11 the wire across the fuse.

12 (Ans. 7).

13 The Appellants correctly contends that the Examiner has not
14 articulated a persuasive reason why one of ordinary skill in the art might
15 have combined the teachings of Sunaga and Matsuoka in the fashion claimed
16 in claim 11. (*See* Reply Br. 4). In order to implement the modification
17 proposed by the Examiner, one of ordinary skill would have had to substitute
18 the fuse 15 described by Matsuoka for the fuse member 60 described by
19 Sunaga. In addition, one of ordinary skill in the art would have had to move
20 the fuse from a position intermediate the first and second circuit sections 31,
21 32; find room on the printed circuit board 40 for the fuse; and change the
22 manner in which the magnet wire of Sunaga's exciting coils 7 were coupled
23 to the second circuit section 32 mounted on the printed circuit board 40. In
24 doing so, one of ordinary skill in the art would have risked sacrificing
25 desirable features of Sunaga's fuse member 60, such as the capacity of
26 Sunaga's fuse member to radiate excess heat. (*See* Reply Br. 3, citing
27 Matsuoka, col. 7, ll. 11-15).

28 The reasoning articulated by the Examiner does not persuasively
29 explain why the modifications to Sunaga's motor 1 proposed by the
30 Examiner would have been obvious, even after taking account of "the

1 inferences and creative steps that a person of ordinary skill in the art would
2 employ." *See KSR Int'l Co. v. Teleflex, Inc.* 550 U.S. 398, 418 (2007). This
3 is particularly true in light of the nature of the electric motor *1* described by
4 Sunaga and the nature of the fuse *15* described by Matsuoka. We do not
5 sustain the rejection of claims 11-13 and 16-18 under § 103(a) as being
6 unpatentable over Sunaga and Matsuoka.

7 Lewchenko describes a method for winding an armature. (*E.g.*,
8 Lewchenko, col. 4, ll. 31-34). The Examiner cites Lewchenko as teaching
9 the use of hooks or tangs to facilitate connections of the magnet wires. (*See*
10 Ans. 6). Lewchenko does not remedy the deficiencies in the combined
11 teachings of Sunaga and Matsuoka. We do not sustain the rejection of
12 claims 14, 15 and 19 under § 103(a) as being unpatentable over Sunaga,
13 Matsuoka and Lewchenko.

14
15 DECISION
16 We REVERSE the Examiner's decision rejecting claims 11-19.

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18 REVERSED
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22 Klh